

WE CLAIM:

1. A method for producing a transgenic peanut plant with reduced or undetectable allergen protein content in the seed, comprising the steps of:

- (a) transforming a recipient peanut plant cell with a DNA construct comprising a peanut allergen antisense gene, or a peanut allergen sense gene, or a combination thereof, or fragments thereof;
- (b) regenerating a peanut plant from the recipient cell which has been transformed with the DNA construct; and
- (c) identifying a fertile transgenic peanut that produces seeds having reduced or undetectable allergen protein content.

2. The method of claim 1, wherein the peanut allergen gene is selected from the group consisting of *Ara h1*, *Ara h2*, *Ara h3*, *Ara h4*, *Ara h5*, *Ara h6*, and *Ara h7*.

3. The method of claim 1, wherein the recipient cell is transformed by the *Agrobacterium*-mediated method.

4. The method of claim 1, wherein the recipient cell is transformed by the biolistic method.

5. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or a fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 2.

6. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 3.

5b  
B9

Sub B's  
7. The method according to claim 1, wherein the peanut allergen sense or antisense gene or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 4.

8. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 5.

9. The method according to claim 1, wherein the peanut allergen sense or antisense gene, or fragment thereof, comprises at least a portion of the nucleotide sequence shown in Figure 7.

10. An isolated polynucleotide molecule comprising the peanut allergen antisense gene, or fragment thereof, operably linked to a promoter and a terminator, the promoter and terminator functioning in a peanut cell.

11. The polynucleotide molecule of claim 10, wherein the antisense gene, codes for an RNA molecule that is complementary to the mRNA molecule coded for by a peanut allergen protein gene selected from the group consisting of *Ara h1*, *Ara h2*, *Ara h3*, *Ara h4*, *Ara h5*, *Ara h6* and *Ara h7*.

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12. The polynucleotide molecule according to claim 11, wherein the antisense gene has the nucleotide sequence selected from the group consisting of the nucleotide sequences shown in Figures 3, 4, 5 and 7.

13. The polynucleotide molecule according to claim 10, wherein the promoter is selected from the group consisting of constitutive, inducible and tissue-preferred promoter.

14. The polynucleotide molecule according to claim 13, wherein the promoter is a seed-preferred promoter.

15. A vector comprising the polynucleotide molecule of claim 10.

16. A peanut plant cell comprising the polynucleotide molecule of claim 10.

17. A peanut plant comprising the cell of claim 16.

18. A seed produced by the plant of claim 17.

19. An isolated polynucleotide comprising the promoter of the *Ara h2* gene having the nucleotide sequence shown in Figure 9

20. An isolated polynucleotide consisting essentially of the nucleotide sequence selected from the group consisting of the nucleotide sequences shown in Figures 3, 4, 5 and 7.

21. A method for producing a transgenic peanut plant with reduced or undetectable allergen protein content in the seed, comprising the steps of

(a) identifying a homologous region common to more than one *Ara h* allergen gene;

(b) cloning the homologous region in a vector modified for peanut transformation, wherein the homologous region is operably linked to a promoter;

(c) transforming a recipient peanut plant cell with the vector; and

(d) identifying a regenerated fertile transgenic peanut plant that produces seeds having reduced or undetectable allergen protein content.